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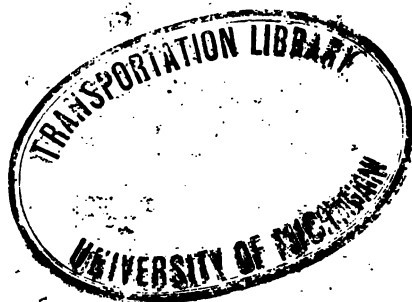
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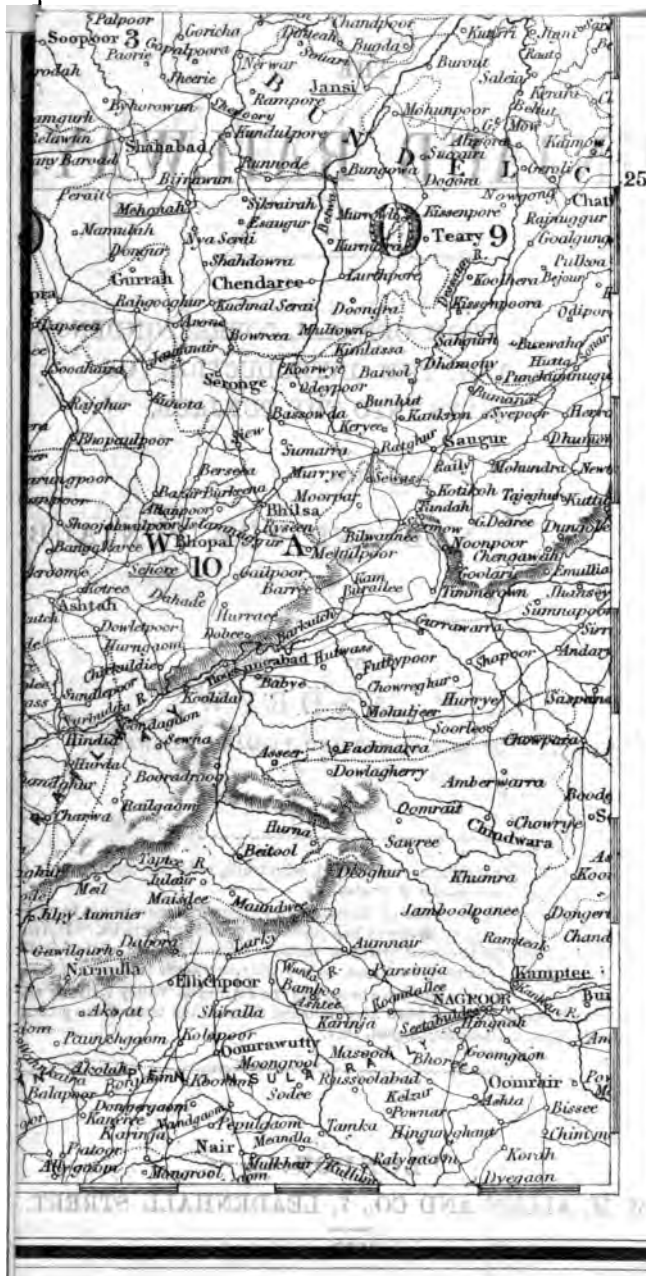
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PUNJAUB RAILWAY.



THE
PUNJAUB RAILWAY.

A SELECTION FROM OFFICIAL CORRESPONDENCE
REGARDING THE INTRODUCTION OF
RAILWAYS INTO THE PUNJAUB,

WITH

MAP OF SCINDE AND THE PUNJAUB.

BY
W. P. ANDREW,

CHAIRMAN OF THE SCINDE AND PUNJAUB RAILWAYS.

"The railroad and the steamers may be said, with truth, to be the crying wants of the Punjab."—*Chief Commissioner of Punjab.*

"Meanwhile the true antagonists of Russian and Persian designs are not inactive. The prospectus of the Punjab Railway has just been published in India. It, (the Punjab Railway), will be the great artery of traffic between the north-west of India and England."—*Correspondent of the Times, Lahore, February 23rd, 1857.*

"What a glorious thing it would have been, had the Euphrates Valley Railway and the Scinde and Punjab Railway been accomplished facts at the time of the present insurrection."—*Lahore Chronicle, August, 1857.*

LONDON:
WM. H. ALLEN AND CO., 7, LEADENHALL STREET.

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Extract from the Speech of BARTLE FRERE, Esq., Commissioner in Scinde, at the General Meeting of the Scinde Railway Company, February, 1857.

“ In reference to the Punjaub, the capacity of moving troops to a given point was of immense importance. In a military point of view the advantage would be this, that if the Khyber Pass should be closed to our forces, they could be moved with rapidity to the Bolan Pass, and in either case the enemy would be taken in flank or in the rear. The Euphrates Valley Railway would give them the command of the sea-board of the Persian Gulf; the completion of that railway would practically make Chatham nearer to any point of action in the Persian territory, than any military force which could be brought to bear upon it from Central Asia. If the triumphs of Great Britain are to be permanent, they must be rendered so by a mutuality of interests, by the material and civilising influences of expanding commerce. The great battle of the country for the tranquillity of Central Asia must be fought at Manchester and Liverpool [hear, hear]. If we would command Central Asia, that dominion must be established by opening up a ready market for their raw produce, and subjecting them by the force of their own material interests.”

Transport.

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From the "LAHORE CHRONICLE," August, 1857.

RAILWAYS FOR INDIA.—Now is the time to impress upon the Government the vital importance of establishing a net work of Railways in this country (India.)

The absolute necessity of establishing rapid communications, has been amply proved by the present crisis. Even with forced marches, troops take 24 days to get over the distance they would be carried by rail in 12 or 18 hours ! !

On economical grounds alone, the Railway ought to be extended and ramified without delay and regardless of the immediate outlay. This may seem a paradox, but we will explain. Ten thousand men with a rail to travel by, are fully equal in this country to thirty thousand with the existing means of conveyance, and the cost of the difference, viz., 20,000 European troops is a matter of pounds, shillings, and pence, that we leave for financiers to calculate.

What a glorious thing it would have been, had the Euphrates Valley Railway and the Scinde and Punjaub Railway been accomplished facts at the time of the present insurrection. How it would have "astonished the Natives" to have seen a gallant British Army landed at Lahore, within a month of the outbreak taking place! and yet such a thing would have been possible, supposing the Electric Telegraph to have been also completed so as to establish an electric messenger between the Indus and the Thames.

But we are a people of slow perception in spite of all that may be said of our superiority. It is only when we are severely punished that we awaken from our lethargy.

The British Lion, terrible when once aroused, requires a good shaking before he can be awakened, but once up, his vigour is as great as ever. At present, however, months must elapse ere the punishment can be dealt out.

Prompt chastisement carries terror and fear with it, and unhinges the plans of the conspirators, whereas, delay in punishing the guilty, gives them confidence and adds to their strength.

Let us hope that one of the good things to result out of this great evil may be **RAILWAY AND STEAM COMMUNICATION ON A LIBERAL SCALE.**

From W. P. ANDREW, Esq., to Sir JAMES C. MELVILL,
K.C.B..

SCINDE RAILWAY COMPANY,
GRESHAM HOUSE, OLD BROAD STREET,
14th March, 1856.

SIR,

The Directors having received a communication under date the 26th January, from their Agent in India, submitting for the sanction of this Board, in compliance with a suggestion of the Government of Bombay, a proposal that surveys should be made by the Scinde Railway Company (enclosure 2) with a view to the extension of the line of railway towards Lahore and enclosing correspondence with the Government authorities relating thereto, as noted in the margin; copies and extracts of the same being annexed for the information of the Honourable Court.

2. I am requested, on behalf of this Company, to state their readiness to undertake the necessary surveys of the line from Mooltan to Lahore and Umritsir, under the direction of the Government Consulting Engineer; should it be the pleasure of the Court to have them proceeded with, and that all the expenses occasioned by the surveys should be placed to a separate account, and be appropriated hereafter according to the arrangement that may be ultimately entered into.

1. From t
Commissioner
in Scinde to t
Governor and
President in
Council. Bom
bay, dated 15
Dec. 1855.

2. Extract
letter from t
cretary of t
Governor of
Bombay to Co
missioner in
Scinde, dated
2nd July, 18
par. 1 and 3.

3. Letter fr
the Agent to
Chairman,
dated 26th Ja
1856.

4. Extrac
from letter
Resident En
neer to Age
dated 16th Ja
1856.

5. Letter from Resident Engineer to the Commissioner in Scinde, dated 14th Dec., 1855.

6. Extract from letter from the Commissioner in Scinde to the Chief Commissioner in the Punjab, dated 21st Sept. 1855.

7. Extract from letter of Secretary of Chief Commissioner in the Punjab to Commissioner in Scinde, of 23rd Oct., 1855, par. 2 and 4, with Extracts of letters from Chief Commissioner in the Punjab to Government of India.

3. Should the Honourable Court concur in the views expressed by the Commissioner in Scinde (enclosure 1), the Chief Commissioner of the Punjab (enclosure 7), and the Government of Bombay (enclosure 2), as to the great importance of the extension of improved means of transit along the Valley of the Indus, this Board is of opinion, that instead of making a through communication by means of a railway between Kurrachee and Lahore, as appears to

be recommended by the agent and resident-engineer of the Company, in their letters (enclosures 3 and 4), that the present is a favourable opportunity for introducing the economical and easily-established system of communication, combining steam transit by land with steam transit by water, so long advocated by their Chairman.

4. For instance, the lower portion of the line from Kurrachee to Hyderabad, by the railway already sanctioned, which will avoid the dangers and delays of the Delta,—from Hyderabad to Mooltan by steamers of improved construction,—resuming the railway from Mooltan to Lahore and Umritsir.

5. A reference to the letters (enclosures 6 and 7), from the Commissioner in Scinde, and the Chief Commissioner of the Punjab, will show that these views are approved of by the local authorities.

I have the honour to be, &c., &c.,

(Signed)

W. P. ANDREW,
Chairman.

Sir JAMES C. MELVILL, K.C.B.,
&c., &c., &c.

From W. P. ANDREW, Esq., to Sir JAMES C. MELVILL,
K.C.B., &c., &c., &c.

SCINDE RAILWAY COMPANY,
GRESHAM HOUSE, OLD BROAD STREET,
20th October, 1887.

SIR,

With reference to the sanction of the Honourable Court of the 3rd July, 1856, to the survey of the country between Mooltan, Lahore and Umritsir, I have the honour to transmit herewith for the information of the Court, copy of a Report from Mr. William Brunton, Superintending Engineer of the Punjaub survey, which accompanied elaborate plans and sections, together with a memorandum from Mr. Yarrow, the Consulting Engineer of the Company, to whom the documents above referred to have been submitted.

2. By a perusal of the report it will be manifest that the line of country presents most unusual facilities for the construction of a railway, offering no engineering impediment whatever, the gradients being equal to only one foot per mile in its entire length. The cuttings and embankments are merely nominal, and the total absence of all expensive bridges and culverts bring the cost of construction within the limits of levelling the face of the country to receive the permanent way, for providing for the natural drainage and irrigation, and for the ordinary appliances for working the line, such as station tanks, fencing, and rolling stock.

3. The line being nearly level, the working expenses

will be consequently low, the consumption of fuel proportionably small, and from the almost entire absence of curves, the wear and tear of the rolling stock will be considerably less than upon lines not possessing these advantages. Labour on the spot is abundant and cheap, and from the suspension of many public works, native contractors can be found competent to construct the line with efficiency and speed.

4. Aided by the Government surveys placed at the disposal of the Superintending Engineer, he has, with a comparatively small staff, been able to complete and forward to this Board, in an unprecedentedly short space of time, and under circumstances of great difficulty, a set of admirably executed plans and sections, which fully establish the advantages above referred to. Copies have been transmitted to the Chief Commissioner of the Punjab, with a suggestion from the Agent of this Company, that as Lieut. Greathed, who was appointed by Government to report upon the line, is engaged on active service, the Chief Commissioner's report should be forwarded for the approval of the Bombay Government, and as railway communication is so urgently required in the country proposed to be traversed by this line, this Board respectfully submit that upon receipt of the Government approval no time should be lost in enabling them to take the requisite steps for raising the capital, and for carrying out the important object they have in view.

I have the honour to be, &c. &c.

(Signed) W. P. ANDREW,

Chairman.

Sir JAMES C. MELVILL, K.C.B.,

&c., &c., &c.

REPORT from WILLIAM BRUNTON, Esq., C.E., Superintending Engineer, to the CHAIRMAN and DIRECTORS of the Scinde Railway Company.

LAHORE,
15th June, 1857.

GENTLEMEN,

I beg to forward plans, sections, and estimates for a line of railway uniting the towns of Umritsir, Lahore and Mooltan.

My estimate is for a single line of railway of 5 feet 6 inches gauge, complete with every appliance to render it fully effective, both as regards the carriage of passengers and goods, and the public safety, with sufficient rolling stock, tools, and machinery to work the same, and every way in accordance with the recommendations of the Consulting Engineers of the Indian Railway Companies sanctioned by the Honourable Court, bearing date London, March 7th, 1856.

In carrying out your instructions relative to this work, I have received great assistance from Captain Thompson, of the Revenue Survey, who has given me free access to his plans, which I must say from their extreme accuracy entitle the said officer to great credit.

The main reason, however, of my being able, in so short a time, to accomplish your views, is the extraordinary adaptation of the country to railway purposes. No tract I have ever seen even of much less area presented so few obstacles.

I have as far as possible chosen the highest ground between the rivers Ravee and Sutlej, in order to keep above the annual inundations, and where this has been impracticable, I have provided such drainage as from the

information I have obtained will be sufficient to keep the works perfectly secure in case of floods. I shall personally inspect every portion of the ground during the next flood, in order to be satisfied that I have founded my calculations on correct data.

The working expenses of a line as laid down must of necessity be small. Being nearly level, the consumption of fuel will be proportionally low, and being almost entirely free from curves, the wear and tear of the rolling stock will be trifling in comparison with the lines not having the same advantage.

The pay also of natives is about 20 per cent. of that in England for labour of the same description.

I have estimated but not shown the position of a branch line from the Lahore station to the banks of the Ravee. My reason is that I wish to see the country over which it must pass inundated (which is the case every year) prior to fixing the most advantageous site for such branch. Whichever site I decide on, my estimate will be adequate for its construction.

I have consulted the wants of the Meean Meer cantonment, and have allotted a station at each end of their lines. The stations at Lahore, Umritsir and Mooltan, I have placed more especially with a view to native passenger-traffic, which will be the main source of revenue from passengers: they are also in suitable positions for the delivery and reception of goods.

It is possible (I may say certain) that near each station between Lahore and Mooltan, natives will form in time large villages. I should recommend you to make such arrangements with the Honourable East India Company as shall give you the control over the erection of any

buildings within, say one mile, from each station ; that the villages may be constructed with regularity, and proper sanitary measures taken, as you may be advised by your engineer for the time being.

Over the whole length of the line, timber for fuel is to be obtained in abundance.

At every ten miles along the line, wells will have to be sunk at an average depth of 80 feet, at which depth abundance of water can be obtained. This is a work which should be proceeded with immediately, so as to provide for the wants of the workmen.

The station-houses also should be erected without delay, as they would form head quarters for my residents, during the construction of the line.

I have formed the line entirely on embankment ; I find it necessary, even where the surface of the ground would appear to warrant a cutting. The reason for this is, that in the rainy season any place below the natural surface becomes a pond, if level ; and if at an inclination, a bed for a stream.

The quantity of land which will be occupied by the railway and station-plots, will be 1,700 acres, and liberty required to take side cuttings, exclusive of this amount. This quantity provides for a double line of railway.

I am not aware if the Honourable East India Company give the land required for the line, clear of all liability.* If the Company have to pay for crops, &c., £5,000 for same should be added to my estimate.

In my estimate you will perceive I have provided for grassing the slopes of embankments ; this may seem an

* The East India Company provide the land free of charge. W.P.A.

unnecessary expense to parties unacquainted with the character of the rains in India, but it is absolutely necessary in order to keep the slopes perfect during the rainy season.

The fencing estimated for is post and rail ; and I propose planting a fence also, in all places where it can be made to grow. The numerous herds of cattle that range over the whole Doab, render a fencing on every portion absolutely necessary, to secure the public safety.

The ballast I propose using principally is kunker (a limestone found in different parts of the Doab), where this is at such a distance from the line as to render its use too costly, I shall substitute hard burnt bricks broken to size ; either of these materials will form excellent ballast.

At every mile along the line I propose putting occupation level crossings ; this distance will, I believe, be satisfactory to all parties. I have taken the opinion of several gentlemen in authority over the different districts, and they state it will be ample. The canal engineers, in consequence of a crossing entailing such an expense in bridges, approaches, &c., &c., only put one every three miles ; but this is at a distance, very detrimental to parties whose ground may be severed.

My estimates are made on fair local prices for each description of work, and on the price of all materials, &c., which must be imported, I have added an amount fully ample for charges in laying the same on the ground. I am convinced the railway can be completed for the sum named.

If a responsible English contractor will undertake it for such sum, you would not, in my opinion, do wrong in letting it ; but from what I hear of the disagreements be-

tween contractors and railway companies in India, the said contractor, whoever he might be, should be tightly bound down, and should give good sureties in case of failure. There are plenty of native contractors here, men who have completed large works on different roads and canals, who would be glad to take from twenty to forty miles of line each, exclusive of the permanent way ; and unless you can obtain excellent security for the proper construction of your works from some English contractor, I should recommend everything, except the permanent way, to be let in the above mode to native contractors, in which case I believe my estimate would be found to exceed the actual cost.

In ordering the chairs, 10,000 in number should be adapted for receiving check rails, which may be a flat bar ; length not less than fifteen feet. Sleepers, of good quality, for permanent way, I can get here delivered on the ground for three rupees each.

All other articles belonging to the permanent way, with locomotives, iron work for carriages, and waggons, tools, and implements of every description, will have to be sent from England.


I recommend (in order that no delay may occur in our obtaining material) rails and all appliances for same, necessary for permanent way, be immediately ordered and sent to Kurrachee. From that place to Mooltan they have to be sent by native boats, necessarily involving a loss of time. If this is done, and proper diligence used in getting them up the Indus, the subject of obtaining the necessary supplies of material needs no further comment. I believe there are plenty of native boats ; it is a question of delay, in consequence of the time these take making a

trip, the disadvantages arising from which, immediate prosecution will obviate.

The locomotives you send out should be adapted for burning wood. They should be light also, which tends to decrease the wear of permanent way. This involves engines of less power than those now generally made in England; but our line is so level that such powerful engines are not required. Forty locomotives will work the line. Twenty 6-wheel engines, leading and trailing wheels 3 feet 6 inches diameter, driving wheels 6 feet, 12-inch cylinders and 20-inch stroke, weight not exceeding 20 tons; and twenty 6-wheel engines, leading wheels 3 feet 6 inches diameter, driving and trailing wheels 5 feet diameter coupled, 14-inch cylinders, and 20-inch stroke, weight of engine not exceeding 22 tons, in both cases, exclusive of tender, which should carry 1,200 gallons, on 6 wheels, 3 feet 6 inches diameter; each engine and tender to be provided with a light frame or roof covered with painted canvas carried on uprights from the engine frame and tender respectively, the tender roof being higher than the engine roof, so as to work perfectly clear and to lap over each other 9 inches.

Every portion or part of each engine and tender in each set of twenty to be made from one template, so that any piece of an engine shall fit and be applicable to perform the same duty or any other of the set.

I should recommend you to have the wood work of all your carriages and waggons made here, the iron work being sent from England; and no delay should take place in making arrangements for such work, viz., for preparing shops and getting timber cut, so as to have it properly seasoned. I find the native workmen clever and



intelligent, and with English foremen over them, can be made to turn out exceedingly good work.

The staff I should require during the construction of the line would be, six first-class engineers, residents, over certain districts, six second and six third-class, each first-class having two assistants; one first-class engineer, a good practical man, to take charge of the principal office and drawing department.

The number of inspectors required it is now impossible to state; it will depend on what works are being proceeded with at the same time. These men can be obtained in this country.

I can get here five men fully competent to fill the position of second class, having been engaged on public works and know the language. The third class should be good practical men, who understand the practice thoroughly, as well as some theory of railway works.

I cannot speak too highly of the willingness and energy displayed by the staff I brought out, who one and all have not flinched from their duties in the field, even when called on to perform the same much later in the season than customary. I beg to recommend that they be promoted to the duties of first class engineers, five being placed between here and Mooltan, and one on the Umritsir line.

In case this is sanctioned by you, one first, one second, and six third class engineers would be required from England during the construction, and sanction given to engage here the others, to make up the above mentioned staff.

I am of opinion that I could complete this line of railway, ready for opening, in four years from this

present date, if I have every facility for so doing afforded me.

I should recommend a good cotton press being erected at Lahore, close to the goods station. The native bales of all descriptions are very badly put together, and can be reduced fully one half their bulk. This is a speculation, the carrying out of which, if not consistent for a railway company, would well pay any private individuals.

That the passenger and merchandise traffic are sufficient even now amply to repay the outlay, the statistical reports you already have from the Government officers fully prove, but in my opinion the increase of these sources of profit will be augmented to a degree that is impossible to calculate, when there is an outlet for the products of the country. At present there is none, the natural result being, that only sufficient for the wants of the immediate vicinity is produced ; and, added to its being a source of profit, the present position of India forcibly points to the absolute necessity of rapid communication with all parts of a country made up of so many discordant elements.

As your proposed lines of railway in connection with the river and railway communication to Kurrachee, will form the main artery through which the whole of the traffic from the Punjaub must naturally pass, I should, to complete the scheme, recommend that the cost of extending the line from Lahore to Peshawur be ascertained as quickly as possible.

I have the honour to be, Gentlemen,

Your obedient servant,

(Signed)

WILLIAM BRUNTON.

Superintending Engineer, Punjaub Survey.

Lahore and Umritsir Road Census, taken at Shahleamar, between the 7th and 12th November, 1854.

MONTH AND DATE.	A REGIMENT ON MARCH.																					
	Travel- lers.	Coolies (Porters).	Carts Laden.	Byles (Bullock Carriages).	Horses and Mules Laden.	Horses and Mules unladen.	Asses laden.	Asses unladen.	Riders and Horses.	Empty Carts.	Ekas laden (Native Horse Carriages).	Ekas empty.	Camels laden.	Camels unladen.	Riding Camels.	Elephants laden.	Elephants unladen.	Bullocks laden.	Goats and Sheep.	Buggies.	Mail cart and Bullock train.	Bullocks laden.
Nov. 7th	1111	698	99	72	68	58	571	189	651	61	90	25	196	91	3	...	...	286	156	...	...	223
— 8th	2605	1225	96	54	269	88	296	581	1297	89	134	25	198	115	2	...	...	52	672	25	6	545
— 9th	1985	880	35	25	112	64	511	68	810	30	105	15	226	41	4	...	...	400	354	7	22	1206
— 10th	1005	503	51	45	176	52	425	105	307	24	203	...	72	55	...	...	...	271	394	4	8	445
— 11th	2900	1102	276	48	506	55	596	78	304	25	182	15	68	74	5	2	1	334	607	3	10	1600
— 12th	2546	1122	576	22	510	146	608	94	146	55	208	10	703	188	...	3	2	503	815	3	8	2004
Total.	10143	7560	1171	256	1521	3215	3007	1114	3215	284	922	90	1461	536	13	7	3	1986	2697	42	54	6123
Daily Average.	1690½	1260	195½	42½	253½	535½	501½	185½	535½	47½	153½	15	243½	89½	2½	1½	1	322½	448½	7	9	1020½

TABLES OF GRADIENTS
BETWEEN MOOLTAN, LAHORE, AND UMRITSIE.

LAHORE TO MOOLTAN.

Gradients.	Rising or Falling.	Length in Chains.	Height above Datum.		REMARKS.
1 in 7920	Falling	61	304·00	303·49	Leave Lahore Sta.
1 in 877	"	52	303·49	299·50	
Level		8	299·50	299·50	
1 in 657	Rising	76	299·50	307·00	
1 in 782	Falling	83	307·00	302·00	Sta. No. 1 at 5m. 45c. fr. Lahore.
1 in 1900	Rising	72	302·00	302·50	
1 in 1540	Falling	175	302·50	295·00	
1 in 3592	"	273·75	295·00	290·00	
Level		120	290·00	290·00	Sta. No. 2 at 15m. 47c. fr. Lahore.
1 in 2640	"	79·75	290·00	288·00	
1 in 1440	"	120	288·00	282·50	
Level		140	282·50	282·50	
1 in 2640	"	100	282·50	280·00	Sta. No. 3 at 52m. 47c. fr. Lahore.
1 in 1320	"	100	280·00	275·00	
Level		201	275·00	275·00	
1 in 4148	"	440	275·00	268·00	
1 in 2970	"	540	268·00	256·00	Sta. No. 4 at 59m. 47c. fr. Lahore.
1 in 3520	"	240	256·00	251·50	
1 in 2263	"	240	251·50	244·50	
1 in 6600	"	100	244·50	243·50	
1 in 5808	"	220	243·50	246·00	
1 in 1320	"	160	246·00	238·00	
1 in 1650	"	100	238·00	234·00	
Level		110	234·00	234·00	
1 in 742	Rising	90	234·00	242·00	
Level		29·75	242·00	242·00	
1 in 570	Falling	110	242·00	229·27	
1 in 9354	"	180	229·27	228·00	
1 in 2200	"	100	228·00	225·00	
1 in 5280	Rising	80	225·00	226·50	
1 in 3520	Falling	80	226·50	224·50	
1 in 2209	"	80	224·50	222·11	
1 in 1616	"	55	222·11	219·66	
1 in 588	"	84·75	219·66	210·68	
1 in 3149	"	219·75	210·68	206·07	
1 in 2918	"	180	206·07	202·00	
1 in 4903	"	260	202·00	198·50	
1 in 1508	"	80	198·50	195·00	
1 in 6600	"	80	195·00	194·20	
1 in 4400	"	80	194·20	193·00	

Gradients.	Rising or Falling.	Length in Chains.	Height above Datum.		REMARKS.
1 in 1992	Falling	160	193-00	187-70	Sta. No. 5 at 71m. 70c. fr. Lahore.
1 in 6600	"	40	187-70	187-30	
1 in 5280	Rising	119	187-80	188-80	
1 in 13200	Falling	59-75	188-80	188-50	
1 in 6600	"	100	188-50	187-50	
1 in 1294	"	100-75	187-50	182-40	Sta. No. 6 at 77m. 45c. fr. Lahore.
1 in 26400	Rising	40	182-40	182-50	
1 in 2253	Falling	140	182-50	178-40	
1 in 5775	Rising	139-75	178-40	180-00	
1 in 1600	Falling	80	180-00	176-70	
1 in 713	"	40	176-70	173-00	
1 in 6600	"	100	173-00	172-00	
1 in 1015	Rising	20	172-00	173-30	
1 in 5866	Falling	320	173-30	169-70	
1 in 2200	"	240	169-70	162-50	
1 in 52800	Rising	80	162-50	162-60	Sta. No. 7 at 97m. 50c. fr. Lahore.
1 in 4620	Falling	420	162-60	156-50	
1 in 3947	"	320	156-50	151-25	
1 in 2956	"	280	151-25	145-00	
1 in 20307	Rising	80	145-00	145-26	
1 in 1378	Falling	160	145-26	137-60	
1 in 23100	Rising	140	137-60	138-00	
1 in 5280	Falling	200	138-00	135-50	
1 in 1280	"	60	135-50	129-64	
1 in 1218	Rising	60	129-64	129-90	
1 in 3771	Falling	80	129-90	127-60	Sta. No. 8 at 112m. 5c. fr. Lahore.
1 in 11000	"	100	127-60	127-00	
1 in 4950	Rising	60	127-00	127-80	
1 in 4400	Falling	120	127-80	126-00	
1 in 13200	Rising	200	126-00	127-00	
1 in 6734	Falling	100	127-00	126-00	
1 in 1590	Rising	120	126-00	131-00	
1 in 2640	Falling	40	131-00	130-00	
1 in 754	"	40	130-00	126-50	
1 in 1602	"	340	126-50	112-50	
Level		120	112-50	112-50	Sta. No. 9 at 135m. 3c. fr. Lahore.
1 in 2329	"	100	112-50	109-10	
1 in 1740	"	240	109-10	100-00	
1 in 3696	"	140	100-00	97-50	
1 in 2700	"	180	97-50	93-10	
1 in 2357	"	100	93-10	90-30	
1 in 14850	"	180	90-30	89-50	
1 in 3882	"	100	89-50	87-80	
1 in 943	"	140	87-80	80-80	
Level		440	80-80	80-80	Sta. No. 10 at 150m. 65c. fr. Lahore.
1 in 682	"	60	80-80	75-00	
1 in 2062	"	200	75-00	68-60	
1 in 776	"	60	68-60	63-50	
1 in 3017	"	160	63-50	60-00	
1 in 880	"	40	60-00	57-00	
1 in 3696	"	280	57-00	52-00	
Level		240	52-00	52-00	

Gradients.	Rising or Falling.	Length in Chains.	Height above Datum.		REMARKS.
1 in 5940	Falling	180	52·00	50·00	* 100 ft. added to Datum Line
1 in 1885	"	60	50·00	47·90	
1 in 1722	"	120	47·90	43·30	
1 in 3882	Rising	200	*143·30	146·70	
1 in 1031	Falling	100	146·70	140·30	
1 in 5525	"	360	140·30	136·00	
1 in 3630	"	220	136·00	132·00	
1 in 609	"	120	132·00	119·00	
1 in 3089	"	220	119·00	114·30	
1 in 13200	"	260	114·30	113·00	
1 in 4400	"	100	113·00	111·50	Sta. No. 11 at 199m. 19c. fr. Lahore.
1 in 1760	"	40	111·50	110·00	
Level		80	110·00	110·00	
1 in 1523	Rising	60	110·00	112·60	
1 in 1660	Falling	140	112·60	111·10	
1 in 39600	"	60	111·10	111·00	
1 in 2299	"	100	111·00	108·13	
1 in 2108	"	100	108·13	102·37	
1 in 4400	Rising	100	102·37	106·50	
1 in 1945	Falling	140	106·50	101·75	
1 in 4693	Rising	160	101·75	103·00	Sta. at Mooltan 207m. 60c. fr. Lahore, Datum 101·00 River Cheenaub.
1 in 4659	"	120	103·00	104·70	
1 in 1158	Falling	100	104·70	99·00	
1 in 5280	Rising	120	99·00	100·50	
1 in 1760	"	60	100·50	102·75	
1 in 8297	Falling	220	102·75	101·00	
Level		60	101·00	101·00	
1 in 1848	"	140	101·00	96·00	
Level		520	96·00	96·00	

Distance from Mooltan to Lahore, 216 miles 60 chains.

LAHORE TO UMRITSIR.

Gradients.	Rising or Falling.	Length in Chains.	Height above Datum.		REMARKS.
1 in 7920	Falling	121	304·00	303·00	304·00 datum at Lahore.
1 in 470	Rising	58	303·00	311·00	
Level		10	311·00	311·00	
1 in 808	Falling	50	311·00	307·00	Meeran Meer Sta. 3m. 10c. fr. Lahore
1 in 3118	Rising	189	307·00	311·00	
1 in 2404	"	256	311·00	318·00	
1 in 2640	"	318	318·00	326·00	Attaras 16m. 27c. fr. Lahore.
1 in 6820	"	311	326·00	329·00	
Level		273	329·00	329·00	
1 in 4059	"	246	329·00	333·00	Umrirts'r Station.
1 in 1409	"	298	333·00	347·00	
1 in 3267	"	198	347·00	351·00	
1 in 7689	"	232	351·00	353·00	

Distance between Lahore and Umrirtsir, 32 miles.

Total length of line, 248 miles 60 chains.

(Signed) T. A. YARROW,

(Consulting Engineer to the Scinde Railway Company.)

REPORT of PUNJAUB GOVERNMENT on Railway from
Mooltan to Lahore and Umritsir.

(EXTRACT.)

So far as the commercial and material interests of the Punjaub are concerned, there is a proposed line from the North-East to South-West, which is of greater consequence to the country than any public work, or any number of works that could be specified. A glance at the accompanying map will show that Northern India has two natural divisions, *first*, the Provinces of the Ganges and its tributaries; *second*, the Provinces of the Indus and its tributaries. In the first or easterly division, the stream of trade and wealth must ever flow down the valley of the Ganges to the natural outlet of Calcutta. In the second or westerly division, if the power of art and science be brought to the aid of nature, the commerce could follow the direction of the Punjaub rivers to the Indus, then down the valley of the Indus towards the rising port of Kurrachee, which is destined to be, to the North-West of India, what Calcutta is to the North-East. *A line drawn North to South, somewhere near Agra and Delhi, will form the probable boundary of the two natural sub-divisions. And if the same facilities were created Westward, which exist Eastward, then all the commerce west of the line would follow the Indus to Kurrachee, in the same manner as the commerce on the east follows the Ganges to Calcutta.* At present, however, the major part of the commerce of the extreme north-west travels eastward, merely from the want of a more direct route. But if the great route of the Indus

were to be thoroughly opened, this commerce would go straight to Kurrachee. To this port there would then come the products from the North-Western India, and from the Central Asian countries beyond that frontier; and in exchange for these, the products of European countries. In this same direction, there would also arrive the vast quantities of Government stores and material for the military and public establishments in that quarter, and large numbers of European travellers would frequent this line (in preference to the Eastern route), on account of its comparative shortness and proximity to overland passage to Europe.

For the opening up of this Western route, the importance of which, upon general considerations is so evident, it is proposed, in the first place, to establish communication by rail and steam from Kurrachee upwards to Mooltan, just above the point where the Punjaub rivers join the Indus. For the first section of this line a railroad from Kurrachee to Hyderabad on the Indus, a distance of 123 miles, has been undertaken by the Scinde Railway Company. At first, the line may be continued thence up to Mooltan, by steamers on the Indus, to be followed by a railway as soon as it can be constructed; there would then remain to be constructed a railroad from Mooltan to Lahore and Umritsir, to join or cross (or rather continue) the great North-Western line between Calcutta and Peshawur. It is this last-named railroad, from Mooltan to Lahore and Umritsir, which immediately concerns the Punjaub; and the Supreme Government have directed complete inquiries on the subject to be made. It will now be proper to state briefly what the advantages and facilities of the line are likely to be.

The Northern terminus of the line will be Umritsir, which is not only the first mart in the Punjaub, but also one of the first commercial cities in Upper India. Its merchants have dealings, not only with all parts of India, but also with many parts of Europe on the one hand, and of Central Asia on the other. To this city there come the choicest Asiatic products, the wool of Thibet, the shawls of Cashmere, the dried fruit and spices of Affghanistan, the carpets of Turkey, the silk of Bokhara, the furs and skins of Tartary, the chintzes and leather of Russia. In return for these arrive the piece goods and iron of Europe, the fabrics of Bengal, the sugar of Hindostan and the Punjaub. To the same emporium are gathered all kinds of indigenous produce of the Punjaub. Of this trade, amounting, according to reliable returns, to three and-a-half million pounds sterling per annum, a large portion proceeds to and from Calcutta, by the Grand Trunk line, another portion to Bombay by difficult and laborious land routes, through Central India and the desert routes of Rajpootana; and a third portion (and at present the least portion) to Kurrachee, by water carriage on the Indus and its tributaries. *Of this traffic, then, nearly all would be diverted to the proposed railroad from Umritsir to Mooltan, and thence to Kurrachee. From these parts, most things intended for export would not go to Calcutta, if there were facilities for going to Kurrachee; and of those things destined for Bombay, all would go by the rail to Kurrachee via Mooltan, instead of the arduous route through Central India. In the same manner all the imports for Umritsir, and other parts of the country between Delhi to the North-Western Provinces Frontier, and the regions beyond it, which now come from Calcutta or*

from Bombay by land, would proceed to Kurrachee, and thence upwards by rail.

But besides the noble traffic above indicated, which is of general as well as local interest, there is already a traffic of some magnitude between the Punjaub and Kurrachee. *So strong is the tendency of trade towards the natural port and outlet, that large quantities of indigenous produce creep and labour in clumsy native craft down the Five Rivers.* In this manner, hundreds of tons of cereals, linseed, sugar, saltpetre and indigo pursue a tedious way over 400 miles of the five rivers to the seaboard. The water traffic is greatest on the Sutlej, next on the Jhelum, then on the Indus, and lastly on the Chenab and the Ravee. The united traffic of the rivers up and down (by the greater part, say four-fifths, being *down* traffic), as ascertained by registration of boats at the junction point, Mithun Kote, on the Indus, is not less than 700,000 maunds, or 35,000 tons per annum. Now, if the rates of carriage by rail should be kept low, so as to attract commodities which can only afford to pay for *cheap* transit, then it may be certainly presumed, that of the above quantity *all that pertains to the Sutlej, the Ravee and the Chenab, and a part of that belonging to the Jhelum, will be diverted to the Umritsir and Mooltan Railway; and if the railway up to Peshawur should have been established, then almost all the traffic of the Jhelum, and much of the Indus traffic, would proceed to Lahore, and thence down the rail to Mooltan.* The present means of navigation being wretched, and the rivers being difficult, the existing water traffic would preferentially take the railway, *provided always that the cost of transit be cheap.* It is, indeed, for the sake of this indigenous traffic that every well-wisher of the Pun-

jaub people must be anxious to see the day when the rail shall be opened from Umritsir to Mooltan. The traffic may be already considerable and promising, but *it is now as nothing* compared to *what it would become*, with the advantages of a rail. In the chapter on Land Revenue, the enormous and increasing production of cereals beyond the present consumption, the probable *surplus* produce amounting to a quarter, perhaps half a million of tons annually, the quantity of unreclaimed land capable of production, the great productive power of the people, were demonstrated. Wheat of excellent quality is grown, and this is eminently a corn-producing province. Sugar-cane of first-rate quality is already grown. Indigo of similar quality can be produced ; it is already exported to a considerable extent, though at present of inferior quality, owing to the defective mode of manufacture. It has been recently proved that good linseed in considerable quantities can be raised. If sufficient pains be taken, many hundred tons of fibre can be prepared. From some parts, good hemp could be exported. From many thousand square miles, the saline nature of the soil offers unusual facilities for the manufacture of saltpetre, which is even now largely made to meet a foreign demand ; and from the same soil, carbonate of soda could be profitably made. The numerous flocks of sheep in the extensive pasturage of the central districts, and in the hills and valleys of the north, yield a wool that is already exported, and which might become an export of magnitude. There are various articles of manufacture fit for exportation, such as the shawls, stuffs, silks, and carpets of Umritsir, Lahore, Mooltan, Noorpore and Loodhiana. It were vain to specify the amount which *might* be exported by the rail, but none

acquainted with the Panjaub could doubt that the aggregate would be enormous. Lastly, independent of European travellers, who would be numerous, the number of native passengers would prove most profitable. Between the cities of Lahore and Umritsir, the transit of passengers has greatly increased since the completion of the new road; the average of travellers to and fro is not less than a thousand persons per diem; and whereas six years ago there were not twenty ekkas (small one-horse vehicles carrying two or three persons) in Lahore, there are now some 250 running daily between the two cities. It is believed, from this source alone a railway might, *even on its first opening*, realize £10,000 per annum on a section only thirty-five miles long. A similar passenger traffic would doubtless spring up between Lahore and Mooltan; and it may be added, that the route *via* Kurrachee would be frequented by pilgrims to Mecca.

Again, if the advantages, present and prospective, of this line, when constructed, are great, so also are the facilities for its construction remarkable. Though the country situated above its northern terminus is rich and highly cultivated, yet the particular tract through which it will run is for the most part poor. Between Mooltan and Lahore, a distance of 240 miles, the country is a dead level, hard and waste. In the first place, then, there will be no cultivated or inhabited ground to be bought up. The price for the land will be almost nominal. There are no engineering difficulties whatever to be met with anywhere between Lahore and Mooltan. The Doab, or country lying between the two rivers Sutlej and Ravee, is elevated in the centre, and the sides slope gently off towards the rivers. From the centre or *back-bone* of the

tract, there naturally run drainage channels to the rivers ; consequently, while a road traversing the Doab, near the banks of either river, must cross or be intersected by numerous little streams, a line constructed in the *centre* would meet *none of them*. But the railroad would run near the *central*, or dorsal ridge, parallel to the course of the new Baree Doab Canal, and consequently, the line will, perhaps, not meet with any stream whatever. There being no streams, nor depressions, nor elevations, there will, consequently, be no bridges, cuttings, or embankments, on at least four-fifths of the distance. As it approaches Mooltan, the line would have to be carried across a few small irrigation canals, and to be partially raised. In short, it would be difficult to select, or even imagine, a champaign more suited for the cheap and easy construction of a railway than the country between Lahore and Mooltan. Between Lahore and Umritsir, the country is fairly cultivated, and generally level. It offers no engineering obstacles. But there would be three or four small streams, and one canal to be bridged. As regards material, the iron would come from England ; timber and wood of the best quality is obtainable from the Hills by water-carriage ; fire-wood exists in the utmost abundance : kunkur would be generally procurable for at least half the distance ; masonry would not be much needed ; if it were, there are ample facilities for brick-making ; the population near the line is sparse, but labour is largely procurable from other parts of this country for any great work.

The absence of physical and engineering difficulties is indeed most fortunate. For economy and even *cheapness* of construction will be essential to enable the railway authorities to fix the transit line at *low* rates. The

passenger-traffic and the more valuable commodities and products would be considerable, and might bear tolerably high rates. But for a mass of produce great in bulk, but comparatively less valuable, *lower rates* will be indispensable. For the goods' trains, speed will generally be of less consequence than cheapness of hire. It is upon this condition, namely, that of moderate hire, that the rail may be expected to supersede the native river boats. In a succeeding chapter the improvement of the river navigation will be urged. If this most desirable end should be accomplished, as well as the railway, the one will not interfere with the other; there will be such a great development of commerce and of national resources, that there will be ample scope for both rail and steam, and each will have its legitimate functions for the enhancement of wealth and civilization.

Limited space has prevented details being embraced in the above sketch. The details, commercial and otherwise, are of great variety and interest, and will be treated of in a separate report; but if the arguments urged should (as it is fully believed they will) be supported by statistical facts and data, then it were superfluous to dilate on the importance of a scheme which will affect the trade of all North-Western India, will give birth to a new commerce yet undeveloped, will be carried out with unusual facility, will prove financially profitable in a high degree, will vitally concern the best material interests of twenty-one millions of industrious people, and will conduce more than any other circumstance that could be named to the future prosperity of the Punjab.

From W. P. ANDREW, Esq., to Sir JAMES C. MELVILL,
K.C.B., &c., &c.

GRESHAM HOUSE OLD BROAD STREET,
24th October, 1857.

SIR,

With reference to my letter No. 193, of the 20th instant, reporting the completion of the survey of the country between Mooltan, Lahore and Umritsir, I have now the honour to inform the Honourable Court that this Board has received copies of correspondence from their agent in India, relative to the examination of the country from Lahore to Attock, and Peshawur by the engineering staff lately engaged in the Punjaub survey, with a view to its adaptation to railway purposes.

2. On the 10th June last, the agent of the Company, in a letter to the Commissioner in Scinde, after having shown that the present state of India calls marked attention to the necessity for facilitating to the utmost the means of communication between distant parts, reports for the information of the Commissioner, the surveys from Mooltan to Umritsir being completed, his intention of submitting to the Punjaub Government a proposal to extend those surveys to Attock.

3. On the 11th June the Commissioner in Scinde, in transmitting copy of the letter above referred to, to the Governor in Council of Bombay, expressed his entire concurrence in the views of Mr. Warren, and strongly recommended that the required sanction of the surveys proposed by him should be given; and on the 29th June the Chief Commissioner of the Punjaub expressed the pleasure it would afford him to obtain sanction for the

contemplated surveys, and that he had on that day addressed Government in hopes of its speedy sanction.

4. In the report from the superintending engineer of the Punjaub survey, which I had the honour to transmit on the 20th instant for the information of the Court, with reference to the proposed survey from Lahore to Peshawur, Mr. Brunton expresses himself as follows :—

“The present position of India forcibly points to the absolute necessity of rapid communication with all parts of a country made up of so many discordant elements.”

“As your proposed lines of railway in connection with the river and railway communication to Kurrachee will form the main artery through which the whole of the traffic from the Punjaub must naturally pass, I should, to complete the scheme, recommend, that the cost of extending the line from Lahore to Peshawur be ascertained as quickly as possible.”

5. The Board entirely concurs in the views expressed by their agent and superintending engineer, as to the propriety of taking advantage of the services of the Punjaub staff for the above surveys now at Lahore, and unoccupied, especially as they could be prosecuted with greater economy and dispatch than at any future period ; and should it be the pleasure of the Honourable Court to have them proceeded with, all the expenses incurred should be placed to a separate account, and be appropriated hereafter according to the arrangement that may be ultimately entered into.*

6. I beg leave to enclose a memorandum from Mr. Yarrow, the consulting engineer of the Company, to whom the subject has been referred.

* Vide Note, page 35.

7. I need not remind the Honourable Court that almost ever since the annexation of the Punjaub the Marquis of Dalhousie, and many other eminent authorities, have attached the utmost importance both on political and commercial grounds, to the bringing of Peshawur at the mouth of the Khyber Pass into railway communication with the seat of the local Government at Lahore.

I have the honour to be, &c., &c.,

(Signed) W. P. ANDREW,

Chairman.

Sir JAMES C. MELVILL, K.C.B.,

&c. &c. &c.

From A. BRANDRETH, Esq., Officiating Secretary to the Chief Commissioner, Punjaub, to J. NEVILLE WARREN, Esq., Agent to the Scinde Railway Company.

PUBLIC WORKS, LAHORE,
29th June, 1857.

SIR,

With reference to the request contained in your letter No. 161, of the 15th instant, I am directed by the Chief Commissioner to inform you, that it would give him much pleasure to obtain sanction for the survey contemplated by you, and that he has this day addressed ^{Lahore to} Government in hopes of its speedy sanction.* ^{Attock.}

I have the honour to be, &c., &c.,

(Signed) A. BRANDRETH,

Officiating Secretary.

J. NEVILLE WARREN, Esq.,

&c. &c. &c.

* Since the above was written, the survey of the country from Lahore to Peshawur has been recommended by the Government of India, and authorised by the East India Company, and its execution entrusted to the Engineering Staff of the Scinde Railway Company.

From W. P. ANDREW, Esq., to Sir JAMES C. MELVILL,
K.C.B., &c., &c., &c.

SCINDE RAILWAY COMPANY,
GRESHAM HOUSE, OLD BROAD STREET,
26th October, 1857.

SIR,—In continuation of my letter (No. 193) of the 20th instant, which I had the honour of addressing to the Honourable Court, with Report of the Superintending Engineer of the Punjaub Survey, and other documents, I am now instructed to state, that if the information submitted to the Court be considered sufficient to induce them to sanction the necessary steps being taken, with a view to the early prosecution of (the Punjaub Railway) a work of vital importance and urgent necessity, this Board would be prepared to raise the necessary capital of £2,500,000, on the same terms and conditions as those which are included in the existing contract between the Honourable East India Company and this Company, so soon as the state of the money market will admit of their doing so.

By entering into the above preliminary agreement, much valuable time would be saved, as this Board could then take advantage of the first favourable opportunity for raising the requisite funds, and no delay would thus be allowed to occur in the prosecution of a design, which was declared in a recent Report of the Punjaub Government, to be “of greater consequence to the country than “any public work, or any number of works, that could be “specified,”—“which will affect the trade of all North-

“western India—will be carried out with unusual facility—will prove financially profitable in a high degree—will virtually concern the best material interests of twenty-one millions of industrious people—and will conduce more than any other circumstance that could be named, to the future prosperity of the Punjaub.”

I have the honour to be, &c., &c.,

(Signed) W. P. ANDREW, *Chairman.*

From Sir JAMES C. MELVILL, K.C.B., &c., &c., to
W. P. ANDREW, Esq., &c., &c.

(EXTRACT.)

EAST INDIA HOUSE,

17th November, 1857.

SIR,—I have received and laid before the Court of Directors of the East India Company, your letter (No. 193), dated 20th ultimo, forwarding reports of surveys of the country from Mooltan to Lahore and Umritsir, executed by the Engineers of the Scinde Railway Company, and I am commanded to state, that upon the receipt of the Report of the Government Engineer, together with the views of the Government of India thereon, the subject will receive the Court's attention.

I am, &c., &c.,

(Signed) J. C. MELVILL.

THE SCINDE RAILWAY COMPANY.

Offices: Gresham House, Old Broad Street, City.

BOARD OF DIRECTORS.

Chairman.

W. P. ANDREW, Esq., F.R.G.S. (26, Montague Square.)

Ex-Officio Director.

SIR JAMES C. MELVILL, K.C.B.

SIR HERBERT MADDOCK, late Deputy Governor, Bengal.

J. EDMUND ANDERDON, Esq., Director of the Bank of London.

HARRY BORRADAILE, Esq., late Bombay Civil Service.

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Director of the Oriental Bank
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Director, National Provincial Bank
of England.

Consulting Engineer.

T. A. YARROW, Esq.

Bankers.

Messrs. SMITH, PAYNE, and
SMITHS.

Solicitors.

Messrs. MARTEN, THOMAS and
HOLLAMS.

Secretary.

THOMAS BURNELL, Esq.

REPORT

OF

PROCEEDINGS OF AN EXTRAORDINARY GENERAL MEETING
OF THE SCINDE RAILWAY COMPANY, held on Friday,
the 24th July, 1857.

AN extraordinary General Meeting of the Proprietors of this Company was held at their offices, Gresham House, Old Broad Street, W. P. Andrew, Esq., the Chairman of the Board of Directors presiding, "for the purpose of considering and approving a Bill now pending in Parliament, entitled 'a Bill for authorising the Scinde Railway Company to extend their operations, and for regulating the Capital of the Company, and for other purposes.' By which bill, it is intended to enable the Company to negotiate with the Honourable East India Company for the purpose of constructing a railway in the Punjaub territory, from Mooltan to Lahore, and Umritsir, and also for establishing on the river Indus, between Hyderabad and Mooltan, a Steam Flotilla, in connection with the railways, and by which bill it is also intended to annul the Deed of Settlement of the Company, and to repeal 'The Scinde Railway Act, 1855,' and to re-enact the same, or parts thereof, with amendments, and to confer additional powers on, and to make further provisions with respect to, the Company, and by which bill provision is made for

keeping separate accounts of the capital, and of the receipts, credits, payments, and liabilities of the several undertakings of the Company.”* The meeting was more fully attended than is usual upon occasions of a mere formal character.

The Secretary (Mr. Burnell) having read the advertisement convening the meeting,

The Chairman said the advertisement which had been read informed the proprietors of the object for which they were convened, which was for an enlargement of the existing powers of the Company. There were, however, a variety of announcements which might, perhaps, alarm a body of unprofessional gentlemen; but the legal principle of action he believed to be that when it was intended to repair it was thought necessary to begin by pulling the whole house down. The object in this instance, however, was not to interfere with any existing powers which the Company possessed, but to extend them and make them more efficient in reference to the great and interesting undertakings which they had in hand. The meeting would bear in mind that the first object which they had in view in the construction of the Scinde Railway was the construction of a line which should connect the port of Kurrachee with some point on the Indus, at or near Hyderabad; the great recommendation of which was, to facilitate communication, and to avoid the great inconveniences arising from the present navigation of the Delta of the Indus. And although the objects of this line were circumscribed and defined, it constituted the first link in the great chain which they proposed ultimately to establish. The second link was the establishment of a steam flotilla to connect by river communication, the upper terminus of the Scinde Railway with Mooltan, the lower terminus of

* Royal Assent given 25th August, 1857.

the Punjaub Railway, a distance of about five hundred and seventy miles. The proprietors were already aware that the East India Company had authorised a guarantee of 5 per cent. upon the £250,000 capital which was required for this purpose, similar to that which had already been sanctioned in respect of the Scinde Railway. The third link was the formation of a railway from Mooltan to Lahore and Umritsir, in the Punjaub ; and although that was not so far advanced as the other was, still, he was happy to say that the Government took the greatest interest in the undertaking. The surveys were very nearly completed, and every thing justified him in saying that no doubt existed of the successful accomplishment of that, he might say, all important work. (Hear, hear.) It might also be satisfactory to inform the proprietors that although great disturbances had taken place recently in that part of our Indian possessions, so that all the engineering staff in the employ of the Company had been organised and drilled twice a day as soldiers, the Company had received intelligence, by the last mail, that order had been so far restored, that the staff had been enabled to return to their bungalows, or private residences, and to resume their duties as before.

It had been customary with him, on previous occasions, to make a few observations to the proprietors, in respect of matters of general interest to the undertaking, although they might be not directly connected with it ; and in the first place, he might mention the condition of the port of Kurrachee. It was, of course, not a proper time to make any complaint against the local authorities, but he might say that the facilities originally afforded were exceedingly defective, and considerable obstacles were, indeed, offered to the landing of some of the Company's stores and materials ; at present, however, he had reason for believing that very energetic measures

had since been adopted, and by a recent report which had been received by the Company, and which, no doubt, the proprietors had become acquainted with through the medium of the daily press, it was stated that a vessel drawing 20 feet 6 inches of water had passed over the bar with the greatest ease. This was beyond any depth of water which he (the chairman) had assumed for the entrance to the harbour ; because, not justified, perhaps, in doing so, by official documents at the time. Nevertheless, he was in possession of the testimony of his distinguished friend, Mr. Frere, Commissioner in Scinde, and of Captain C. D. Campbell of the Indian navy, who was the first to cross the bar with an armed steam-vessel of great burden.

Mr. Frere wrote to him by the last mail on another subject of considerable interest to the proprietors of the Scinde Railway Company. That gentleman earnestly recommended to the attention of the Company the construction of their line so as to connect Keamaree, the landing place in the harbour, with the town and camp of Kurrachee. He expressed his conviction that it was a "paying line ;" and this recommendation, it was the intention of the Directors of the Scinde Railway Company to submit at the earliest opportunity to the Directors of the Honourable East India Company, and he hoped that no delay would interfere with their proceeding with that section, which was in fact a portion of their undertaking. He had, on previous occasions, adverted to the great delay which had interfered with their progress, and he could not hesitate to speak of it again, but he had received assurances so strong that such impediments as had occurred would not occur again, that, perhaps, he might be excused if, under the existing circumstances, he allowed that matter to remain without further remark at present. (Hear, hear.) He had spoken of that portion of the line recommended by Mr. Frere, and of his having spoken of

the line as a "paying line," and that gentleman had been good enough to support his recommendation by a tabular statement, setting forth the amount of passenger traffic which at the present moment passed along the section between the harbour and town. No fewer than 18,000 persons were shown to travel in the week between the two points named, or at the rate of 3,000 persons per day, reckoning only six days to the week. This section was only four miles in length.

Another fact of great importance to the remunerative character of their undertaking, was the recent discovery of coal within a distance of thirty miles of their upper terminus. Specimens of the coal had been sent over, but what was of much more importance was that the coals had been practically tried on board one of the East India Company's vessels, and had been proved to be not only an excellent coal for steam ships, but for ordinary furnace purposes. It was exceedingly valuable, therefore, not only for steam ships, but for the purposes of the railway. He had thus drawn attention to some of the most interesting matters which bore indirectly upon the undertaking in which they were immediately embarked, and he would now speak of the main and distinguishing features of the bill before Parliament, and which they were that day met to consider and sanction. He had on previous occasions said that he considered the Scinde railway the best line in India. It was the spout of the funnel through which all the traffic of Upper India, the Punjaub, Cashmere, and Central Asia would ultimately direct itself; and he therefore thought the suggestion of an honourable proprietor at a previous meeting, that the capital invested in this undertaking should not be interfered with by, but should be kept separate and distinct from, the capital of the other undertakings in which the board were engaged, was a very natural one. With the view of meeting this wish,

Mr. Thomas, their legal adviser had been instructed, and, under the advice of Mr. Buller, had introduced in the bill now before the House of Commons a provision which was generally considered as an innovation upon existing railway legislation, but, nevertheless, a very salutary one—that, in respect of the three distinct undertakings which were to be conducted by the same management, there should be three distinct capital and revenue accounts; and from the observations of his learned friends, he had no doubt that the arrangement would receive the sanction of Parliament, as it would unquestionably conduce to the satisfaction of the proprietors in each enterprise. The Scinde Railway would stand upon its own merits, and have its distinct revenue and capital account. The same with the Flotilla, and the like with the Punjab—three distinct concerns under one management. It might be objected, indeed, that although the accounts were kept distinct, the Directors might have a special interest in one rather than in either of the others; but it would be seen, when the provisions of the bill came to be read, that precautions had been taken to render it necessary that the qualification of the Directors should be of equal amount in all the three undertakings. Mr. Thomas would, however read the bill, if desired; or perhaps such clauses, *in extenso*, as might more particularly interest the proprietors, the remainder being read in short; and he would, with the permission of the meeting, move the formal resolution approving the bill, with authority to the Directors to prosecute the same, with a view to its being passed in the present session of Parliament. At the same time, before he put the question, he should be most happy to answer any question, or give any explanation in his power to any gentleman present.

In answer to questions as to the character and quality of the coal recently discovered,

The Chairman said, it was of a peculiar kind of lignite, entirely free from sulphur, and especially adapted for steam fuel. The bed at present opened was a band of eight feet in thickness, forty feet from the surface, indicating therefore a much more valuable deposit at a lower depth.

Mr. Nicholson asked at what stage the bill stood in the Commons?

Mr. Thomas said it had been read a first time.

The bill was then read, Mr. Thomas explaining the principal points. There was no limit to the capital of either of the undertakings. The capital, if increased, would be offered in the first instance *pro rata* to the shareholders in each. The clause as to the several revenue and capital accounts being kept distinct was read *in extenso*.

Upon the clause giving borrowing power, being read,

Colonel Wright observed that an original shareholder in the Scinde Company invested his capital with certain prospective advantages, one of which was, that he should have a claim upon any future share capital issued by the Company, but if the East India Company had power to issue bonds instead of shares, that interest would be *pro tanto* prejudiced.

In reply, it was stated that the railway company, and not the East India Company had power to issue bonds, and that power was in the hands of the Company—and the same power was given them by the old deed of settlement and Act of Parliament.

In answer to further questions, it was stated that the number of the Directors was not to exceed twelve, and not to be less than five. That the qualification of a Director must be a holding of the value of £500 in each concern,—or £1,500 in all. That power would be given to convert shares into stock, and that there should be no necessity for a further application to Parliament in the event of this

contingency—as was the case in the East Indian Railway Company—and that the new company was incorporated under the Companies Clauses Consolidation Act. The old deed of settlement of the Scinde Company was under the Act of 1851, which was repealed, and it was desirable to set it aside by the present bill, which took away none of the powers of the previous deed, but simply enlarged the powers of the company to the exigencies of the three undertakings.

The resolution approving the Bill was then put and carried unanimously.

The Chairman then said he should be under the necessity of again inviting the proprietors to attend at a meeting to be held in ten days' time, to confirm the resolution passed that day; and he trusted to their personal attendance, as the presence of a certain number was necessary, and it was the desire of the Directors to expedite the bill by all possible means, so as to get it through in the present session of Parliament.

The business of the day being concluded, it was a great gratification to him, as he was sure it would be to the proprietors, to state that, as on a previous occasion, they were honoured with the presence of Mr. Commissioner Frere; so at the present meeting Mr. Temple, the secretary of the Government in the Punjaub, had honoured them with his company that day. (Hear, hear.) The name of Mr. Temple had previously been mentioned by him to the proprietors, and that gentleman's reports were full of the most valuable information, of which they had availed themselves freely, and with great usefulness in furtherance of their general designs. Mr. Brereton late Deputy Commissioner, Lahore, was also present. (Hear, hear.) No two gentlemen, as was well-known to every one at all acquainted with Indian affairs, were better qualified to speak to the merits and advantages of the Punjaub Railway, and

he had the permission of Mr. Temple to say that he would answer any question on the subject; and, indeed, he should be happy if, without any questions asked, he would be good enough to state his views to the meeting. (Applause.)

Mr. Temple then rose, and said he was not aware that he could give the meeting any information beyond that contained in the reports, which, in his official capacity, he had addressed to Government. He believed that those reports contained all that could be collected on the subject. It was true that those reports were most voluminous and full of details of a minute and technical character, and it might be convenient to the meeting if he directed attention to one or two of the more salient points. In the first place, then, he must be permitted to say that he regarded the construction of the Punjaub Railway as an indispensable work in connection with the other two great undertakings. As the construction of the line from Mooltan to Umritsir and Lahore was comparatively of little value, except in connection with the navigation of the Indus, so the construction of the Scinde Railway would be deprived of its chief value without its continuation to the north, and the connection of the North-Western Provinces with the port of Kurrachee. In fact, the great object to be accomplished was to bring the traffic of the North Western Provinces of India into their natural channel down the Indus, to their proper outlet—the port of Kurrachee.

The traffic of the Indus, consisting of the traffic of the north-west, had always been immense, from the earliest days of caravan transit. The traffic was now diverted by two unnatural outlets. One was down to Calcutta, by the Valley of the Ganges, and the other over the range of mountains to Bombay. But this traffic, as he had said, must be brought round to its natural and direct course down the Indus. And here he must confirm all that their

Chairman had said relative to improving the capabilities of the harbour and port of Kurrachee. He felt sure that that port was destined to be second in importance only to the port of Calcutta. What Calcutta was to the Ganges, that was the relation of Kurrachee to the traffic of the Indus; and he considered it very important to the interests of the public, as well as to the interests of the undertakings in which the proprietors were embarked, that these facts should be disseminated as widely as possible.

The existence of an enormous amount of traffic, of which he had spoken, was incontestable, and had been so for many years; but his friend Mr. Brereton would tell them how very considerably this had increased since the country had been under British rule, and a metal road had been established! and there was every reason to believe that from the facilities which would be afforded by the construction of the railroad, an immense impulse would be given to the traffic already developed. This he spoke with reference only to the commercial traffic of the district; but there could be no doubt that when the railway was established it would constitute the route for the conveyance of troops and military stores. They now came up by Calcutta, but would ultimately come up by Kurrachee when the railway was established; and it was well known that the flower of the British army was in the Punjaub.

The pilgrim traffic was also very great, even under existing difficulties and impediments, and it was impossible to doubt that, with increased facilities, it would be wonderfully expanded, since the religious feeling was very strong amongst the Mohammedan population, and the district was full of shrines and places of devotion.

As to the character of the country, he might observe that its capabilities, in regard to cultivation, were not developed, but it was studded with cities of great commercial

importance. It was the north that made the Punjaub so valuable to the British Empire. The facilities which the surface of the land afforded to the construction of a railway were also remarkable. Throughout the entire length of the line, there was not a single stream or ravine, and upon the estimates of experienced engineers, the construction of the line would not cost half the money which it would in the Presidency of Bengal. In former times it was largely cultivated, and would be so again. Works of irrigation were being extensively carried out by the Government. At the present moment the Government were constructing an irrigation canal of great length, and indeed second only in importance as an engineering work to the celebrated canal of the Ganges. The canal was constructed as a navigable canal, as well as a canal of irrigation; but there was little prospect of its being used for traffic, inasmuch as the supply of water would, by no possibility, equal the demand for purposes of irrigation. The most important portion of this great work would probably be opened for a length of between 200 and 300 miles within the next two years.

As to the estimates of return upon the capital required for the Punjaub line, the most careful inquiries had been instituted, and the result arrived at was, that upon the existing traffic a fair return might be relied on upon the presumed cost of the work. This, of course, was without looking to the increase of traffic, which all experience proved was sure to follow on the opening of a railway. (Hear, hear.)

Colonel Wright here called the Chairman's attention to an observation of Lord Stanley's, as to the importance of "cheap" railways.

The Chairman said he would take the opportunity of disabusing the mind of the gallant Colonel on the subject of "cheap railways." The railways in India were, he

believed, at the present moment being made remarkably strong, and at a moderate cost. On the western side, he understood that they did not cost £10,000 a mile. And this for trunk lines, on which heavy traffic was to flow, was a very low estimate. If by cheap lines the gallant Colonel would have them understand that he wished for lines of light construction, he must say he should look upon such "cheap" lines as being dear lines in the end. He (the Chairman) had recommended the construction of cheap lines, in the form of tramroads in the North of India, but in that case only as branch lines—not for trunk lines. The traffic on the trunk lines was so great, that light rails would speedily be rolled out (hear, hear). It was a principle of true economy to construct the trunk lines in a plain and substantial manner.

All who are present, he was sure, participated with him, the Chairman, in the gratification which he derived from the remarks which Mr. Temple had addressed to the meeting (applause). To him, the Chairman, it was especially gratifying, inasmuch as these observations confirmed, in a remarkable manner, what he had previously spoken or written on the subject.

A question was put as to whether iron or wood was to be used as sleepers, in reply to which it was stated that wooden sleepers for upwards of forty miles of line have already been sent out.

Mr. Temple said that the Upper Himalayas supplied a very fine timber which was used in Upper India for bridges and other public works. It was a species of cedar which he believed was not vulnerable by the white ant, which was not so destructive as it was represented to be. Besides it was a known fact that constant vibration so disturbed the white ant, that the use of wood as sleepers on a railway might be considered as comparatively secure from their ravages.

In answer to a question by Colonel Wright as to the arrangement of the Board as to calls,

The Chairman said, as the present might be considered a period of general financial pressure, the Board had every desire to postpone the calls as long as they could. In reference to the capital for the flotilla, he was happy to say that the Directors had received applications for allotments from more than two hundred shareholders in the Scinde Company—and this was about half the number of their entire body of proprietors—besides the general public. He thought this must be taken as a very good test of the favour with which they were regarded. There was no reason to doubt that the entire capital would be readily subscribed.

Colonel Wright said he hoped the payment of the deposit would be delayed until after the arrival of the second mail from India.

The Chairman acquiesced in this arrangement. There would be no call until after the act was obtained; but, before the guarantee was actually given, it would be necessary to pay up 25 per cent. of the capital—that is to say, before the contract was executed, a call of £4 per share must be made, in addition to the £1 deposit.

The Chairman then in a few appropriate remarks moved a vote of thanks to Mr. Temple for his presence at the meeting that day, and for the important and interesting information which he had afforded.

Colonel Wright seconded the motion, which, was carried by acclamation.

A Shareholder was anxious to know when any call would be made on the Punjaub shares.

The Chairman said the surveys were not yet completed, and some time after the report was received might elapse before any call would be necessary.

